

1. An apparatus for connecting planar plastic materials by a laser transmission method, wherein a top material layer facing a laser source consists of a material which is transparent for the laser beam and a bottom material layer consists of a material which is absorbent for the laser beam, so that the contact surfaces adjoining one another of the two material layers fuse and combine with one another under pressure during the subsequent cooling, the apparatus comprises a processing head for accommodating guide devices for the laser beam and a device for transmitting the laser beam under the application of pressure to the material layers to be connected, wherein focussing means is arranged in the processing head and a rotatable roller which is transparent for the laser beam is arranged at the outlet end facing the material layers, the means comprises an integrated lens system, during the setting to the focus plane, interacting with the transparent roller, and the processing head having pressure devices for pressing the material layers together during the joining operation.

2. The apparatus as claimed in claim 1, wherein passages for injecting air for mounting the roller are arranged in the processing head.

3. The apparatus as claimed in claim 1, wherein a plurality of processing heads are arranged next to one another.

4. The apparatus as claimed in claim 3, wherein spacer devices are arranged between the processing heads, wherein the spacer devices engaging between the top material layers located under the processing heads.

5. The apparatus as claimed in claim 1, wherein the processing head has an elongated narrow housing, on which a piston/cylinder unit engages in alignment with lateral housing walls.